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Why mundane energy use matters: energy biographies, attachment and identity

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Abstract

In recent years, debates about energy justice have become increasingly prominent. However, the question of what is at stake in claims about energy justice or injustice is a complex one. Signifying more than simply the fair distribution of quantities of energy, energy justice also implies issues of procedural justice (participation) and recognition (acknowledgement of diverse values constitutive of ways of life). It is argued that this requires an acknowledgement of why energy use matters in everyday life.

Data from the Energy Biographies project at Cardiff University is used to explore connections between the relational texture of everyday life and the ethical significance of energy. In particular, it is demonstrated that embodiment, attachment and narrative are features of sense-making that contribute significantly to everyday understandings of the ethical meanings of different ways of using energy. Using multimodal and biographical qualitative social science allows these implicit forms of evaluation to become more tangible, along with the relationships between them. Conceiving of energy consumers as subjects with biographies, with attachments, and as engaged bodily in energy consumption can open up, it is suggested, different ways of enacting the procedural and recognition aspects of energy justice.

Keywords

Energy transitions, energy justice, energy ethics, social practices, attachment, narrative, biography

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Introduction

Interviewer: And did you look at efficiency standards and things like that?

Lucy: Yeah, 'cos I've chosen all my appliances so I think everything, I think there was – what appliance would it have been? The tumble dryer I think, that literally hardly ever got above a B. But most of my things are like AAA or AA [...]

In everyday life, energy matters – or so much research would suggest – chiefly as a costly resource to which many in developed as well as developing countries have inadequate access. Policy on energy consumption in developed countries has focused in recent years on the issue of fuel poverty, while in developing nations the issue of energy poverty has increasingly featured on development agendas (Bouzarovski and Petrova 2015). In response to these issues, discussions have arisen around the multifaceted concept of energy justice in this journal and elsewhere. The ethics and politics of access to energy services has thus entered the foreground of scholarly attention. What we might call the everyday ethics of energy is, however, also about negotiating an increasingly tangled thicket of norms and imperatives. This is particularly the case in contexts where responsibility is delegated to individuals for following norms of energy use that reflect the need, in response to the 'energy trilemma', to reduce energy use not only because of its costs but on climate change grounds also.

Such discourses of energy transition are increasingly interwoven with debates about energy justice. Moving from a fossil fuel-based to a low-carbon energy system raises multiple questions about energy and equity (Newell and Mulvaney 2013). In this article, we explore how a particular qualitative sociological approach to what we define as the everyday ethics of energy can help understand how these questions are connected with 'thicker' meanings of energy consumption. In particular, we examine some of the complex ways in which energy consumption is experienced as contributing to lives felt to be good lives, lives worth living.

To explore this theme, we focus on a qualitative approach to understanding the place of energy consumption in everyday life which is both biographical and multimodal. It examines how the significance of energy consumption is bound up with personal lifecourse transitions, both experienced and anticipated. Lucy, who moved from London to a rural village in South Wales with her husband and young family for a better quality of life, identifies in the extract above how she has developed expertise in choosing the most energy-efficient appliances possible, mainly on grounds of cost, but also because avoiding 'waste' seems, environmentally speaking, the right thing to do. Having given up her highly-paid consultancy job to look after her children, she prides herself on managing the household's energy use efficiently and responsibly. Yet at the same time, her descriptions of the house she is renovating with her husband manifest conflicting imperatives, later in the same interview.

[...] we are getting a log fire and how actually they're probably super inefficient aren't they in heating a room? [...] we've put massive radiators in our new house cos its really

Victorian, tall ceilings, and so we just don't need a wood burner to be on at any point but actually it'll sort of make the room [...].

Here, it seems that Lucy has simply gone from talking about how much she cares about energy efficiency to saying things that make her earlier claim look like bad faith. So should we read Lucy's apparently conflicting statements as evidence for how affluent lifestyles simply promote individual interests and preferences over the common good, whether the scale encompassed by this good is that of the family or the global community? In this article, we suggest that there is more to the ethics of everyday energy use than a clash between what might be called the non-ethical importance of energy (energy services which provide for preferences) and imperatives that might be taken to represent some aspect of an ethics of energy (e.g. oriented towards waste avoidance, or environmental sustainability).

Energy matters, we argue, as part of what Michael Lambek (2010) has called 'ordinary ethics'. For Lambek, the ethical register is immanent within everyday life, an evaluative 'should be' that is implicit within everyday attitudes, emotions, statements and above all actions. The defining contribution of this register is the making of distinctions between suffering and flourishing, between lives well-lived according to determinate criteria and ones that are comparatively diminished (Sayer 2012, pp. 8-9). At times, it becomes explicit, particularly where there are conflicts, tensions or interruptions to the flow of what is normatively agreed upon (cf. Zigon 2007). In this sense, it is of anthropological interest insofar as the ethical register is a key part of how subjects make sense of the world, both collectively and individually. This aspect of sense-making perspectives places tends to place subjects in evaluative and sometimes in critical dialogue with shared ways of seeing. What, analytically speaking, makes the ethical attitude distinct from an expression of mere preference, is the implication that what is being said or done is an attempt to give voice or expression to that which is right or good *in general*. In other words, that what is at issue is interpreted as something which is universally to be avoided or desired, whereas preferences are simply preferred. The key difference between the objects of ethical evaluations and mere preferences is that the rightness or goodness of ethical objects is open to argument and justification, whereas a stated preference takes an assertion of subjective will to be the final word. Ethical evaluation, whether implicit or explicit, holds open a space of reasons for desiring or avoiding something on the basis of its rightness or goodness.

Lucy's statements about her commitments to energy efficiency, on the one hand, and to a particular style of rural living, on the other, could be seen as 'mere preferences'. But what this misses about her statements is the way in which they help to articulate particular ethical evaluations of ways of life. Energy efficiency is not simply practically better, it is about not being wasteful, about aligning one's behaviour with a compelling imperative. Reinstating wood fires is an aesthetic choice, but it is also part of achieving a valued way of life, in which what is good for Lucy, her husband, her children (and as, we shall see later, her friends) are bound up together. Lucy's evaluations of what matters and of how she should act are connected to particular ways of using energy. They

emerge from a backcloth of shared ideas about good lives and moral actions. Yet these ideas not just norms that determine both consciousness and behaviour. They are material ingredients of evaluations around which flow strong emotional and affective currents. These evaluative judgements therefore take on great importance for her sense of who she is and what she can and should do. They are affirmed through action as well as belief, embodied in consumer goods and modes of conduct as well as discussed and justified. Energy consumption is not simply an instrumental means to an end (obtaining heat, light, enabling cooking, etc.). It can also be a constitutive (Groves 2011) ingredient of valued ways of being in the world, of identities, and forms of agency.

It is this everyday ethics of energy, the ways in which energy is felt to matter ethically as part of the background and sometimes the foreground of everyday life, is the subject of this article. Using qualitative data from Energy Biographies, we show how the use of energy services is inseparable from the everyday as an 'ongoing flow of continual concrete evaluation' (Sayer 2012, p. 97). This demonstrates how the nuances and subtleties of everyday practice and talk about practice can reveal ethical tensions and conflicts that may have great significance for energy policy, particularly in relation to envisaged energy transitions.

We contend that the everyday ethics of energy can supply a thicker perspective on what matters that is highly significant when we consider ethical and political aspects of the envisaged energy transition that go beyond distributive justice. We argue here that everyday energy ethics can help deepen our understanding of the procedural and recognition (Schlosberg 2013) aspects of energy justice. It can do this by opening up questions over the viability and desirability of different forms of energy transition, and also about the new norms and imperatives that may be associated with them. What is more, the evolving entanglements of practices, technologies and identities explored by our biographical approach are evidence that participatory initiatives can face difficulties, as everyday energy use is often emotionally-charged.

Energy Biographies methodology

Much research on energy justice draws on quantitative data relating to access to energy services or energy poverty (Bouzarovski and Petrova 2015; Sovacool and Dworkin 2013). The role of qualitative methods in understanding ethical concerns about energy is less established. While ethnographic studies of how people use and make sense of energy are an established part of scholarship, particularly in relation to emerging energy transitions (Strengers 2011; Ozaki and Shaw 2014), tying such work into explicitly ethical debates comes up against a reluctance from qualitative social scientists to take steps into a territory typically claimed by philosophers (Sayer 2009). It has been proposed, however (Sayer 2011, 246–52), that qualitative sociological or anthropological research can help us enrich ideas articulated as thin concepts within ethics and political philosophy (good lives, suffering, respect and disrespect, dignity and indignity). In this way, qualitative social science can help subjects to articulate what

matters to them, and to create opportunities for social actors (including the research subjects themselves) to respond to these interpretations as informed agents.

Funded by the UK Economic and Social Research Council (ESRC), *Energy Biographies* was designed to examine how policies intended to drive reductions in energy demand at home and at work can face difficulties arising from the complexities of mundane energy use. In particular we wanted to explore the ways in which lifecourse transitions alter energy use, and how understanding these can help any transition to a low-carbon energy system. We undertook a programme of qualitative longitudinal and also multimodal research designed to make mundane energy use and its supporting socio-technical infrastructures tangible and visible (Shove 1997), and to explore how people make sense of energy in their everyday lives. Typically, in studies of the moral meaning of consumption (ethical consumption etc.), specific consumer products and the ways in which they matter are studied (Hall, 2011). But here our focus was not solely on objects that happen to consume energy, but on how practices that consume energy do or not themselves become objects of concern. The longitudinal approach served as a way of tracking lifecourse transitions which brought with them changes in how energy is used. Using participant photography tasks and future-focused films about domestic energy, a multimodal approach allowed participants to explore ways of making sense of their daily lives based on a variety of sensory modes (Pink, 2003; Pink & Leder Mackley, 2012). These multimodal elements formed foci for discussion in later interviews. In this way, how to make energy visible, tangible and sensible was a research question that was pursued in distinct yet interlinked ways.

People were interviewed over the course of 18 months between 2011 and 2013, across four case sites. These included the Royal Free Hospital (RFH) in North-London, with interviewees recruited from among the hospital's employees. Two areas in Cardiff were included: Ely and Caerau; a socially-deprived inner-city ward, and Peterston-Super-Ely; an affluent commuter village on the city's outskirts. Finally, we also recruited participants from the Lammas/Tir-y-Gafel ecovillage in Pembrokeshire. Residents there live off-grid, have built homes from sustainable materials, and have land-based livelihoods (see also Forde's article in this issue). First round interviews were carried out with a total of 74 individuals (pseudonymised below) who were participating in energy-use reduction initiatives of various kinds. A sub-sample of 36 participants was then selected to take part in two subsequent rounds of interviews and multimodal activities, and supplied with smartphones with which they were asked to photograph aspects of their everyday energy use before the second and third interviews.

In the following sections, we explore themes drawn from the project's data which illustrate three ways in which Lambek's immanent ordinary ethics is entangled with energy use, before going on to discuss in more depth how these themes illuminate the objects of everyday energy ethics, and particularly how they exemplify the ways in which energy use is connected with ideas of the good life. These three themes are: embodied engagement with technologies, attachment and identity, and narratives of transition. Although framing energy justice against a backdrop of energy or fuel poverty

offers an important route forward, understanding the ethics of everyday energy use enables us to understand how mundane energy practices are themselves already implicitly ways of participating in debate over what matters (Michael 2015), as they give subjects a stake in particular ways of life, help to shape identities, and prime evaluations of how the world should be.

Three themes

Attachment

We now return to Lucy. When she was first interviewed, she was living in the first of two houses in Peterston she lived in during the interview period. This followed, as noted previously, a move from London to South Wales, where both she and her husband had family roots. Desiring a better quality of life for her children went along with the need to secure for herself an identity focused on being primary caregiver (having given up a well-paid consultancy job) and also as a home renovator in this new rural location. Part of this identity is, as noted above, her evaluation of herself as an efficient household manager, which she avows humorously (yet not without frustration) in contrast with her husband's practices 'it does make me cross when like Sean especially just is deliberately almost, you know, wasting [energy]'.

At the same time, the wood fires that she and her husband were reinstating in their second house in Peterston, into which they moved during the period of our study, represent another set of values (and as we discuss below, another identity). These other values are also embodied by a patio heater, of which Lucy took a photograph before our second interview with her. Just as she saw the wood fires as inefficient, yet as playing an essential role in producing a desired mode of rural life, she affirmed that the patio heater was wasteful, yet served a similar purpose. The wastefulness associated with 'heating the outdoors' (Hitchings, 2007) is undeniable:

[...] we do love our patio heater when it's a sunny evening but it gets a bit cold and dark and you can sit out and they're like probably the worst things aren't they?

[INSERT FIGURE 1 AROUND HERE]

Figure 1: Lucy's patio heater

Yet the importance of the heater, and the practices reliant upon it, lie in how they support her sense of what it means to be a 'good hostess'.

Cos we love being outside, we just love that you can you know go, we were sitting out there one evening ... it was like midnight and you could have a drink outside still and it's so lovely here cos it's so quiet and everything so but you wouldn't have been able to do it without that so or you would have been freezing. So that's our kind of, we know it's really bad but we're still going to use it.

'Everyone' (in her part of Peterston) has 'two cars' and 'woodburners', and so the wastefulness of the wood fires can at least be underplayed in relation to these norms of consumption. However, the patio heater sticks out as wasteful even by these standards. Its meaning, however, and that of the practice of heating the outdoors, are related to the role of hostess. Following the move to Wales, Lucy and her husband make extra efforts to sustain old friendships. She strives to make her home as welcoming, as warm, as homely as possible so that its rurality can be enjoyed. This may be partially about displaying social status, and in particular the status displayed in a decision to leave London behind for the country. Yet at the same time, the fires and the patio heater embody a continuing desire to care for friends – and for friendships. The rural house is not just a home, but a place for regularly hosting friends, a convivial space whose material fabric (warm) and meaning (welcoming) are anchored (in part) by the 'bad' heater. We will return to Lucy in the next section.

Ronald, another affluent Peterston resident, described his attachment to his two wood-burning stoves, and reflected on the importance of expanding off-shore wind power and developing large scale tidal power. At the same time, he talked eloquently of his deep and long-term emotional attachment (he was in his seventies at the time of speaking to him) to driving – and indeed a particular kind of driving. He felt that his identity was bound up with specific cars, material objects that bear the traces of ongoing care, and symbolise particular competences and shared meanings. At the core of his relationship with driving is a kind of autonomy connected with the experience of controlled risk, and a sense of comradeship that revolves around building, modifying and driving cars.

What turns me on is a piece of old kit that you've put together and you've developed and, you know, the cars I have are not just reconstructed but I've developed them as you would have developed them from original. They are not an original but they do stuff that they couldn't do when they were first built. ... That's the appeal for me; you've done this, you've put it together, you and your chum, its adventure, more than motorsport in a sense ... the adventure bit is every much as important as the mechanical bit but both are important ... so I wouldn't want to do that in a battery-powered car or a hydrogen car or a modern car, wouldn't want to do it and it wouldn't turn me on.

With a firm appreciation of the importance of climate change and resource depletion, Ronald nevertheless sees a renewables-led future through the 'lens' of his attachments to driving. Renewables symbolise loss, a loss of a form of abundance and with it a threat to his identity and to shared participation in this kind of identity, which represents a cultural resource for living a particular kind of good life: 'I feel it will be a loss for certainly my generation and probably for the generation behind me. I think it will be a loss'. Driving is, for him, a practice associated with a set of personal, biographically-conditioned values, relating to risk-related autonomy, competences, ideals and forms of friendship.

In Ely, Jack echoed Lucy in describing how a recent lifecourse transition from employment to self-employment had been accompanied by a change in identity, one

embodied in his consumption decisions and particularly in how he had remodelled his home. These decisions had been, in part, about creating a particular kind of domestic ambience suited to entertaining friends (Thomas et al., forthcoming). Buying particular objects, for Jack, was about creating an ideal of sensory comfort, which he described in reference to, for example, the clocks and standby lights on the electronic devices in his living room: 'at night time it's like the Starship Enterprise, everything has got a little light on it but I quite like it'. Extremely conscious of energy efficiency and the value of low-carbon forms of energy, he was nonetheless very attached to both a high level of material consumption (consumer electronics, having one vacuum cleaner for each floor of his house) and to particular high-energy consumption objects (like a garden hot tub). He spoke of how he did not consider any of this wasteful, as he purchased objects that he had a clear place for in his new, remodelled home, ones which he knew he would use and enjoy. He viscerally contrasted his attachment to his realm of things with his mother's attachment to hoarded 'useless' objects, suggesting that his conscious purchase of objects, and engagement in the practices they made possible, represented an attachment to a genuinely efficient style of consumption.

As Wallendouf and Arnould (1988) point out, there can be strong links between what goods people consume (and how they consume it) and their self-concepts. The same, our data suggest, is also true of how energy is consumed in the form of particular services, provided through specific devices and infrastructures. In each of the cases we have highlighted here, a relatively affluent individual describes his/her attachments to different, and what might be identified as differently wasteful, energy-using practices. Yet there is more to these attachments than just how they support particular individual identities. In each case, the attachments people avow are part of a 'convoy' of attachments (Antonucci and Akiyama 1994), in which emotional connections to other people (Lucy's family and friends, Ronald's fellow enthusiasts, Jack's friends) are highly significant. Additionally, attachments to ideas and more abstract aesthetic or ethical values (like homeliness or avoiding waste) are linked to these other attachments. The practices through which concerns about and for these convoys of attachment are looked after can themselves become objects of emotional attachment in turn (as with Jack's electronics or Lucy's patio heater). In each case, how energy is used (and perhaps wasted) is a reflection of who or what is cared about, and how. In each case, how an individual evaluates their energy use is bound up with how they evaluate these attachments and their significance for their own lives. This is not a simple process. It is bound up with expectations about the future through which ambivalence and anticipated loss emerge (as with Ronald). It is connected, in Lucy's narrative, with tensions between the need to not be wasteful and the need to be a good hostess for old friends. And with Jack, it is expressed through an explicit rejection of one set of values and associated practices in favour of another, one which moves within an ethical register by offering (somewhat convoluted, self-exculpatory and possibly self-contradictory) reasons why one mode of consumption is less wasteful than another.

In understanding the meaning of practices, sociologists often point to the shared meanings associated with them, which help to explain how some practices gain more

and more adherents (Shove, Pantzar, and Watson 2012). Lucy's wood fires are, for example, undoubtedly cultural signifiers of a certain widely-shared aesthetic, which interlocks with other ways of embodying homeliness. Yet the meaning of different ways of using energy for these interviewees is, in each case, also about the ways in which values and practices represent for them (as individuals with particular biographies), constitutive ingredients of a life that can be considered a good life, one that could generally be seen as rich and worthwhile. Through the biographical lens we have used on Energy Biographies, these aspects become tangible and visible. Shove et al (2012, p. 73) note that practices are engaged in, in part, because they bring 'internal rewards'. By this, Shove et al mean the intrinsic satisfaction associated with performing a practice well, independently of what instrumentally useful results it might produce. But practices bring another kind of internal reward. Lucy does not engage in particular heating practices just to ensure her house is warm. Using wood fires and patio heaters are part of how she cares for her friends and for her attachments to these friends. Because of this relational aspect, they are also part of how she cares for herself. They assist in sustaining her own relational sense of who she is, and also support her in acting in conformity with what she considers are good normative standards. They are woven into a biography that is, in part, an ethical story, a story about what a life that wants to be good might look like.

This does, however produce tensions for Lucy, as we have indicated. In the next section, we explore these tensions further, and the ethical conflicts to which they lead, both in her case and for another interviewee whose circumstances are very different.

Liminal transitions

Adopting a biographical lens makes it possible to render more tangible the ways energy use changes over time. As the data presented in the previous section suggest, however, energy-using practices change significantly alongside comparably-significant shifts in identity. And as people work on their identities, they also re-evaluate their perspectives on how one should live. As we have seen, everyday energy ethics works with and around attachments that are taken to be essential constituents of lives lived well. In this section, we explore in more depth how an everyday energy ethics rooted in connectedness can produce moral tensions and conflicts that are hard to resolve. These tensions do not simply arise between different values (such as between e.g. efficiency versus homeliness), but can best be understood as arising between different styles, or better, logics of evaluation.

Lifecourse transitions, like those described by Lucy and Jack, can be characterised as 'liminal' (Turner, 1974), insofar as they involve passing beyond the boundaries of one socially-recognised identity (e.g. being single) into a new one (e.g. being married). They may, in some cases involve the ritual breaking and reformation of attachments, and formal induction into new practices. More generally, anthropologists have shown how, within a variety of tribal and so-called pre-modern societies liminal transitions are often resolved through concerted and collective efforts at integrating individuals into new roles and thus new identities (such as when adolescent boys in some societies leave

family homes to become hunters). These efforts make use of shared cultural resources (such as rituals and narratives of transition) as well as the forming of new attachments to people, objects, places, institutions, and/or to new practices associated with post-reintegration identities. In contemporary industrialised societies, such efforts at reintegration after lifecourse transitions are sometimes experienced as difficult, as medical sociologists have shown. Certain experiences (like a cancer diagnosis or suffering stillbirth) are hard to make sense of with shared cultural narratives, as when medical professionals attempt to make patient experiences of this kind fit into a narrative of restitution, for example (Frank, 1998; Layne, 1996).

We have already alluded in the previous section to what might be called post-transition 'identity work' (Snow and Anderson 1987), focusing on Lucy and Jack, and on how this is undertaken in an ethical register, one in which models of a life well-lived are employed to make sense of experience. We now focus more explicitly on lifecourse transitions as recounted by Lucy, and also by another interviewee, Christine. In these cases, identity work raises certain difficulties, which may be manifested within interviews as moral conflicts about energy.

As we have already seen, Lucy articulates her long-standing attachment to ideals of wise management that antedate her house move by contrasting her own sense of right conduct (avoiding waste) with her husband's irresponsibility. Yet their transition, in pursuit of better quality of life, to an old (and hard to heat) rural house places her in a difficult position. This is a product of the interaction between her attachments and the material fabric of her home. Hosting old London friends regularly meant using the heating more ('a lot of people come here and complain its cold') and cooking large meals. Add to this increased efforts to keep the house warm for her young children, and the result was much higher energy costs.

I never really wanted to waste money, energy but now I think it's just, when I got my last energy bill, I couldn't believe it.

Her attraction to the new home, and her identification with the role of rural hostess, becomes juxtaposed with her struggle to keep bills low. Striving to render her home congruent with her emerging identity is thus a source of tension. As noted in the previous section, Lucy justifies the use of wood fires within a normative frame that is distinct from that of avoiding waste. Within an affluent community where 'everybody' has a wood burner and two cars, she feels her inefficient wood fires still reflect forms of waste that, as part of a comfortable rural lifestyle, can be justified. In other words, this is a 'good' form of waste, at least within a communitarian 'good life' normative framework. However, there is no such context in which she feels the patio heater can generally be located and redeemed, however. It remains a *bad* object, embodying a *bad* form of waste. At this point in her narrative, she acknowledges the troubling nature of heating the outdoors, however. She draws attention to the way in which it cuts against both a more general imperative to avoid waste and also against the standards of her community. But then she immediately disavows this negative meaning of the practice.

At the point where a conflict between her attachment to a new ideal of 'the good life' and her identification as a wise resource manager comes into sharpest relief, she says of the heater 'we know it's bad, but we're still gonna use it'.

Lucy thus gives voice to a conflict which, as she becomes increasingly aware of it while reflecting on the photographs she took between the first and second interviews, appears to be something she wants to gloss over. It is the result of a clash between distinct identities and the attachments that support them, a clash that is ultimately one between the logics of evaluation that are anchored around these identities and attachments. On the one hand, there is the imperative to avoid waste, which distinguishes between good and bad behaviour; on the other, the desire for a good life, which distinguishes between better and worse ways of being (in which hospitality, rurality and friendship loom large).

Lucy's move from the city to country and the resulting tension between different energy-using practices and attachments is situationally specific. It is one that arises both because of her family's affluence (and the latitude for action and choice it brings) and the material attributes of her home. Christine (like Jack, a resident of Ely), inhabits a very different set of circumstances. Christine was in her early fifties, and lived with her husband and youngest child (her other children having now left home) in a large house, to which the family had moved several years earlier, owing to the need to find a larger property to accommodate one of their children's disabilities. They had recently put their house up for sale, given that most of their children had left. Before the first interview, Christine had recently become unemployed. During the course of the interviews, the death of her father-in-law, who had recently come to live with the family, occurred.

The multiple lifecourse transitions Christine described in her interviews had brought a variety of changes in how the family consumed energy. She recounted how, over the course of her life, she had moved house several times (and renovated several new properties either with previous partners or with her husband) as family circumstances have changed. These changes had included events like splitting up with a former partner before re-marrying, and most recently, bringing her father-in-law into the family home. Having him live with them meant keeping the house warmer, at a more constant temperature, which increased energy bills. Nonetheless, she represented all these transitions as temporary disruptions and identified with an image of herself as flexible, adaptive and capable. Speaking of the 1980s, she said noted that 'I had the two eldest children and a low income. You just got by. It sounds really strange and it does sound very nostalgic saying, "Well you just got by."' Avoiding waste as part of managing complex family commitments was vital and reducing energy use was, she said, part of this.

Yet if 'getting by' seemed to evoke a past identity and role, it remained very much the cornerstone of her identity in the present. Each time a significant transition had occurred, she recounted how her care for home and for children had been re-established. Unlike Lucy's experiment with a new identity in a new home, Christine's

interviews focused on continuity. This continuity was, however, characterised as cyclical – rather than as a progressive search for a better way of living a life. Christine's transitions were about renovating houses after moving, saying goodbye to children who had left home, welcoming them back after university terms or relationship break-ups, taking in aged parents, gaining and losing employment.

Some are subtle changes that you don't realise until you think about 'oh okay!' our way of living is always like this. Like I said, right at the very beginning, kids leave, kids come back whether it's University or whether they move in with their friends or whether they move in with a partner, whether that relationship suffers and they come back, they always come back to mum.

Reworking, recycling, re-using was part of settling after each such transition, including sorting out clothes ('I've always got charity bags in my cupboard'), heating systems ('that's my gas fire that I've got rid of') and home extensions. In each case, the far side of a transition was seen as the re-establishing of a dynamic balance between the family and its social environment, achieved partly through changing how the family used energy. Increased costs as family members moved in or returned home were balanced by careful attention to thermostats, additional energy efficiency measures, or by nagging children to keep turning things off. While Christine's sense of how she should live was focused on trying to integrate a desire to avoid waste with the need to care effectively, she talked, as her interviews went on, of how recent lifecourse changes has made this difficult.

Christine's story is recounted in a form that is somewhat like a spiral. Her narrative of herself as carer and builder, and her stories of her activities of caring and building/re-building, identify her both as subject to the vicissitudes of an interdependent and vulnerable existence, but also as actively and resiliently responding to uncertainty. Nonetheless, while there is continuity here, there is also disruption, arising from events (children's relationship breakups, her father in law's death, losing her job) that erupt amidst everyday life: 'Oh God, I literally, you just don't know what's around the corner [...] so we don't look into the future as such.'

After the death of her father-in-law, Christine and her husband had begun to redecorate the house again, perhaps hastily: 'the first thing that I think of is just changing your environment.' This decision was linked to several others relating to a plan to sell the house that turned out to have a temporary destabilising effect on the household. '[N]ever' (Christine said) 'make a decision when you've just had bereavement.'

As a builder and re-builder, Christine was well-informed about a range of energy-saving measures. Yet care for others is always threatening the financial balance between incomings and outgoings. Where Lucy's care for others, and her linked sense of herself, is focused on creating a new way of living well, Christine's care for others focuses on 'keeping afloat', reflecting financial circumstances but also emergent events. Her adaptability is double-edged. It means continually rebuilding and rebalancing, tinkering

with financial and energy budgets. Yet, as her remarks about the future show, it may also mean adapting one's perspective, focusing on a relatively narrow sphere of concerns, which may make it difficult to plan for thoroughgoing and durable changes in how energy is used, or indeed, in other areas of life: 'you just don't know what's around the corner'.

Lucy actively disavows the significance of the moral conflict she experiences between avoiding waste and living a life well-lived. Christine, on the other hand, avoids talking too much about the tension she experiences between a desire to avoid waste and a desire to care for her dependents. Within the context of her own life and her family's lives, each woman experiences the social imperative to avoid waste, to use energy more efficiently, as problematic. In each case, lifecourse transitions bring this imperative into friction with other ethical perspectives and valued identities, which help Lucy and Christine to articulate identities (the good rural hostess, the carer and rebuilder) that they feel are part of good lives.

Attachments emerge, in the interview data presented here, as the material of everyday ethics, along with the energy using practices connected to them. Yet as we have seen, they are also the source of tension and moral conflicts. What is more, as attachments and the identities they support bear significant emotional investments, talking about these conflicts can be difficult. We find within our data evidence of how everyday energy ethics concerns valued attachments and practices, but some of these support identities that may not necessarily be in harmony with other identities that are related to norms of waste avoidance or efficiency, norms that derive from discourses of energy transition.

Embodied engagement with technologies

So far, we have shown how attention to everyday energy ethics can help us understand how implicit ethical frameworks enable our interviewees to make sense of their energy-using practices. In addition, we have shown how such frameworks can, in relation to social imperatives regarding how one should use energy, create tensions and conflicts that may be difficult to resolve. As well as pointing to such conflicts, however, our data point to more positive implications of everyday energy ethics. In particular, they suggest how the attachments which ground everyday energy ethics can open up opportunities for changing energy-using practices.

In the introduction, we mentioned how the ways in which energy is used can be seen as part of what Sayer calls the 'ongoing concrete flow of evaluation'. We have seen in the foregoing sections how particular ways of using energy are bound up with attachments and identities, and also with visions of lives well-lived. In this section, we extend this 'thickening' by examining how bodily engagement with energy-using devices and infrastructures can also be considered an aspect of this concrete flow of evaluation. We

show that biographical and multimodal social science approaches help to make the ethical aspects of bodily arrangements, attitudes and activities available for reflection. We argue that this approach can therefore provide a basis for critical consideration of visions of energy transition.

Devices, appliances and infrastructures are not simply arms-length tools that help to achieve pre-arranged ends. They change the ways in which people experience the world and transform their capacities for action (Verbeek, 2011). In this way, technologies cannot be treated simply as objects ready for use. They are also products and extensions of human subjectivity. Their contribution here is not just to modulate pre-arranged ends, either, by enhancing our capabilities. In use, particular technologies can also reshape what subjects take to be their ends (Mol, 2008). The introduction of new technologies can thus help to change implicit evaluations of what is right or good, in ways which have significant implications for how (and how much) energy is consumed by particular practices.

For example, consider the value attached to convenience in contemporary technological societies. During recent decades, a desire for greater efficiency and ease in how domestic services are provided has shifted to become an end-in-itself (Shove, 2003). Part of this development has led to human agency being designed out of a wide range of socio-technical systems (including but not limited to domestic life) as much as possible, often through automation. Socio-technical arrangements have therefore emerged that 'obviate the human sources of friction' (Ellul 1964: 414) within them. These 'human sources of friction' are the ways in which human agency can subvert the intended mode of operation of technologies. A key design goal must therefore be *frictionlessness*, often achieved by reducing engagement in the system to the making of simple choices between predetermined options. Agency – and responsibility (Laidlaw 2010) – thus proliferates, thanks to the growing number of devices that operate along these lines. The unintended consequences of the central role accorded to convenience as a design ideal and as part of an implicit vision of what it is to live a good life, are significant, however. The onerous domestic toil which previous generations experienced as part of daily washing, cleaning and so on is replaced with other activities. But there are complex knock-on effects for how energy is used across the totality of domestic life and also for how people manage their time (Shove and Southerton 2000).

There are also other knock-on effects for how people make sense of their environments, as energy using practices shift and change alongside technological evolution. If attachments can be treated as part of the fabric of everyday ethics, and of everyday energy ethics in particular, then the role of the body in attachment also has to be considered as a strand in this fabric. The concept of 'bodily reasoning' has been used in relation to childhood attachment (Miller-McLemore, 1994, pp. 147-148) to articulate how bodily comportment and contact shapes emotional attachments. In environmental social science, the relationships between bodies and surrounding environments (particularly when these environments are disrupted, polluted or otherwise harmed) have been depicted as playing a constitutive role within ethical reasoning: 'the somatic

precedes and then is entangled with the rational' (Shapiro, 2015, p. 375). As part of our approach to making the implicit, intangible elements of everyday energy use explicit and tangible, we used (in addition to the aforementioned photography tasks) viewings of short films (including one of the Monsanto 'house of the future' from 1957, and the 2012 UK Channel 4 [Ch4] series 'Home of the Future') in our third round interviews. These facilitated talk about how it felt to engage bodily in different kinds of energy-using practices and to imagine futures in which different practices – and thus different ways of being in domestic environments – existed (Groves et al. 2016).

This facilitated discussion on the connections between aesthetic qualities associated with energy-intensive domestic environments and ethical views relating to lives well-lived. Many people, from a variety of socio-economic circumstances, valued convenience, but also had mixed feelings about it. On the one hand, those who could remember (for example) the advent of gas central heating saw it as a liberation from shovelling coal as well as heralding a suddenly warm and therefore much more comfortable domestic environment: 'It's the best thing in the world that happened to me, was going from coal that we had over in Hywel Dda there' (Jeffrey, Ely). On the other hand, convenience (as a kind of end in itself) was associated with problematic attitudes of carelessness: 'We don't think about it twice I mean putting the microwave on or the kettle on or the cooker on is not, you don't kind of hmmm do I really need to do this?' (Monica, RFH). In this way, the biographical focus of our research links up with wider processes of meso- and macro level change which open up a space in which a range of different evaluative perspectives can be articulated.

For example, ambivalence became more negatively charged among some participants as they reflected on their viewing of the 'future home' films. Jonathan (Peterston) noted, after watching the C4 film, that the 'smart' technologies and visions of a hyperconnected internet of things depicted in it made him reflect that

Even if all the electricity was coming from renewable, Green sources I think it would still bug me a little bit because it's the heedlessness of it and the lack of mindfulness and the [...] just that, that kind of carelessness of it all.

Part of this 'heedlessness', Dennis (RFH) suggested, was that energy-intensive convenience tended to strip away intelligent engagement with everyday challenges:

Like the fridge that re-orders [...] I still think it sort of dumbs us down as a kind of society and replaces our you know ingenuity and our thinking, free thinking with controlled you know thinking and computerisation of everything

Other energy using practices which encouraged less automated or 'thin' (Casey, 2001) forms of engagement with the world were seen differently. While these involved effort – and sometimes onerous effort – interviewees contrasted them favourably with frictionless convenience. Several people – again, from very different socio-economic circumstances – contrasted the experience of building a log fire with central heating, for

example. For example, Sarah (RFH), living in rented accommodation with her daughter in North London and Robert, living in a large house with his family in Peterston both make such distinctions.

I think we were saying about the log fire, its rewarding when you sit back and see the log fire whereas if you just flick a switch and it's there it's not as rewarding so who knows you know on how it affects our happiness in the long run things like that, don't know. (Sarah, RFH)

Yeah well that's, my partner says I'm obsessed with it because I'm always off up the woods looking for wood and things like that, 'I'm going to light it tonight', 'oh no you're not are you?' I mean it's only that big. But it is, it's quite nice sitting in front of a fire watching telly and my daughter plays in there with her Lego and things when we sit there and it's quite nice (Robert, Peterston).

It might be thought that such forms of engagement might simply be viewed as inconvenient, as unsuitable for inclusion in a good style of living within a technological society. Yet some interviewees, including Sarah and Robert, also spoke of such practices that require what might be labelled 'frictive' engagement as the source of different forms of convenience alongside more intimate forms of controllability, with very different energy-use implications (Vannini and Taggart 2014). This was most evident at Lammas, where several respondents described how their reliance on community hydropower and household solar photovoltaics tended to create relationships with technologies that are more bodily and emotionally engaged (see also Forde, this issue).

[...]we're just so used to checking the readouts we kind of know now and it makes a massive difference whether it's sunny or not so we know that if its sunny Harry can play his music full blast and you know it's not a problem he can play his music all day and into the evening and if it's been gloomy like today for three or four days we know that we'll probably need to check before turning on the computer for a film you know, or whether we watch a film on Faye's little small laptop or whether we use Harry's big LCD screen [...] (Peter, Lammas)

Echoing Sarah and Robert's remarks, Lammas residents contrast wood-fired heating (using wood from the communal woodland) with central heating.

Yeah but I don't like [her mother's central heating]. I look back and I think actually I see for me how I had no connection with it, no connection you know, whereas when the wood's there and you see the fire going you think maybe I'll just turn the fire down cos the pile of wood is shrinking. Yeah I think it's very easy if you have no connection with it and the bills just go out by direct debit and there's no connection with the fuel that is actually being burned to produce this heat (Emmanuelle, Lammas)

[INSERT FIGURE 2 AROUND HERE]

Figure 2: Emmanuelle's woodburner

These frictive forms of engagement are *thicker*, involving more attentive (Stiegler, 2010) and focal (Borgmann, 1993) ways of being in the world. They derive from 'haptic' rather than 'optical' engagement with things, a form of engagement of a 'mindful body at work with materials [...] "sewing itself in" to the textures of the world' (Ingold 2011: 133). As such, they can be said to represent implicit evaluations of energy using practices that locate them within a particular vision of a life well-lived. When interviewees were invited to reflect on the modes of life depicted in the two future films, those who valued frictive forms of engagement (such as Jonathan, Sarah, Robert, Peter, Emmanuelle and Vanessa) tended to judge these imagined alternatives unfavourably. It would be a mistake, we suggest, to see such judgements purely as expressions of firmly and more or less explicitly-held values. Instead, they reflect more implicit evaluations encapsulated within somatic and emotional modes of experience. Nor do these judgements evaluate objects or practices simply on the basis of individual inclinations or preferences. Instead they are part of an everyday energy ethics. They point to heedlessness or controllability as examples of what are seen as ethically significant qualities embodied by people and/or objects. Here, we hear people's bodies and the technologies they use becoming 'things to think with' that create situations of 'open enquiry' in which what matters and what the good life is about are open to experimentation and reflection (Hobson 2006: 318). As different ways of using energy enter the foreground of concern explicitly through reflection on the films, the kinds of implicit ethical commitments to ways of life and their connected justifications that are sewn into the texture of everyday life become open for debate and criticism. In our interviews, we hear subjects beginning to worry at the stitches.

Discussion

In identifying some of the ways in which people make sense of their everyday energy use as entering a specifically ethical register, we are not making a normative judgement about the rightness or wrongness of the claims we have argued are embedded within their engagement in and reflections on mundane practice. Rather, we are connecting our study of energy-using practices to the concept of ethical life established by Lambek (2010) and his contributors as central to an anthropology of everyday ethics, in which evaluations of how the world should be – and of how those subjects who inhabit it should act – appear as immanent in social practices (and, as we have suggested, in modes of individual somatic and emotional engagement in these practices). In doing this, we want to suggest that practices and reflections upon their meanings are more than just the revelation of subjective preferences. We can understand them, as we maintained in the Introduction, via an analytical distinction between the brute force of preference and the persuasive force of the ethical register of discourse. These practices express attachments and commitments to ways of life that judge these ways of life to be normatively compelling in some way. Over time, we have argued, these modes of evaluation become stitched together, sewn into the textures of the world (Ingold 2011: 133) so that the socio-material environment reflects an 'ongoing concrete flow of evaluation' (Sayer), and with it, a virtual imaginary of what it is to live a good life, one which can become available for further reflection.

Through the use of biographical, multimodal methods, we have argued, energy using practices, the devices and infrastructures that are their material components, and the visions of lives well-lived through which people make sense of them can become explicit, tangible and visible. As we have seen, such an approach shows that everyday imaginaries of lives well-lived are not like idealised philosophical systems, totalising, airless and all-encompassing. They are instead multiple and overlapping, exhibiting ragged edges that can be clearly seen in Christine, Ronald and Lucy's narratives, in which each expresses, from a different socio-economic position, more than one identifiable ethical imaginary. The ragged edges of these imaginaries stand out when, as we discussed under the second of our analytical themes, lifecourse transitions bring distinct normative visions and the self-concepts associated with them into tension and even conflict.

In Lucy's case, tensions emerged between her view of herself as a wise household manager, centred on waste as a moral category and her desire to be a good hostess. This tension stands out most clearly when her desire to remodel a cold house as a warm home takes her beyond what she understands to be the normative limits of the affluent rural community she and her family have recently joined, which are symbolised by multiple car ownership and wood-burning stoves. The resulting conflict between contrasting self concepts is one she acknowledges then immediately disavows when talking about her valued patio heaters.

Living in a community where between 19 and 23% of households (Gordon and Fahmy 2008, 24) have been defined as being in fuel poverty,¹ Christine's situation is very different. Yet at the same time, the ordinary ethics of energy woven through her narrative is also expressed in the form of normative tension and identity conflict. Like Lucy, she too is concerned with energy efficiency and waste as a moral category and has a linked sense of how parental (and filial) responsibility relates to managing energy use. These commitments come into tension, however, as cycles of care (for children and elderly relatives) expose the household to financial uncertainty, in conjunction with other lifecourse transitions (like unexpected unemployment). Christine's strong views on responsibility for waste on the one hand, and responsibility for dependents on the other, open up a zone of ethical difficulty which makes it hard to anticipate what might happen in the future. While Christine's household is not itself in fuel poverty, it is easy to imagine that the kinds of ethical tensions manifest in her interviews are likely to accompany experiences of fuel poverty, and indeed to be exacerbated by it.

In these cases, and also in those of Ronald, Jack and the others we have discussed above, the meaning of mundane uses of energy emerges through the connections it sustains - to people, but also things, to practices, and above all to valued ways of living and being. The tensions and conflicts we have been exploring in the cases of Lucy, Ronald and

¹ The current definition of fuel poverty accepted by the UK Government is that a household is fuel poor if it has necessary fuel costs that are above the national median level, and if it spending this amount would leave the household with a residual income below 60% of UK median household income for their household type. See <https://www.gov.uk/government/collections/fuel-poverty-statistics>.

Christine emerge from the relationships between the distinct attachments that they are concerned with, and are sharpened by the logics of evaluation they use to articulate their importance. These attachments and logics eventually emerge, in our interviews, as explicit commitments. Where this happens, practices, values and objects become 'things to think with', or matters of concern (Latour 2004). In some cases, such as Ronald's and Jack's, thinking with things in this way maps out definite reflective moral positions – on the one hand, recognising the inescapability of loss; on the other, articulating an idiosyncratic vision of a life well-lived. In others, like Christine's and Lucy's, thinking with things becomes emotionally difficult as identities become compromised. Everyday energy ethics is a matter of implicit, but important, attachments that can, in some circumstances, become explicit – yet perhaps fragile – commitments.

In the examples above, the importance of energy consumption is articulated by our participants in two forms. On the one hand, different ways of consuming energy are necessary – instrumentally speaking – for taking care of certain attachments. Keeping her father in law's room warm enough imposes additional costs on Christine's household (which might be considered wasteful from a certain point of view), yet it is a vital part of what it is to take good care of him. At the same time, this instrumental use of energy is constitutively necessary, for as an ingredient of good care, it is central to Christine's sense of herself as responsible and committed to doing the right thing. The interdependence of people, practices, appliances and infrastructures thus takes on a dual aspect – in which energy services are seen as both instrumental and as constitutive goods, and thus as necessary for good lives in two ways. This constitutive role of energy services in relation to valued identities is emphasised in Lucy, Ronald and Jack's narratives. Here, the meaning of particular ways of using energy is explored through consideration of how identity and agency are interdependent with how particular (Lucy's patio heaters) and even singular objects (Ronald's cars) are instrumentally useful. Objects here mediate and help sustain valued relationships (with Lucy's London friends, or Ronald's fellow car enthusiasts) during lifecourse transitions and beyond. As such, the meaning of energy use is not simply reducible to its instrumental value. Certain ways of using energy support particular identities over time, and make them sustainable and manageable through times of change, uncertainty and even crisis.

If the everyday ethics of energy tends to circle around the value of connection (and therefore on ways of thinking about harm and flourishing that have to do with connection and, by extension, disconnection), it is often also articulated in narrative form (Gilligan 1982). Everyday ethical thinking around energy use thus often focuses on how events happen. It also focuses on the significance of *when* they happen, and in what order (O'Neill 2008). Talking about how lives have changed, and how these changes are connected with shifts in how energy is used, opens up perspectives on how harm and flourishing have been experienced as dimensions of these lives, taking us into a specifically ethical register, and one which is not simply about material deprivation.

Relational identity and agency as loci for both harm and flourishing are encountered in the interviews with Christine, Jack, Lucy, and Ronald. If identity and agency are

interdependent with attachments, then they are also interdependent with the means and instruments through which concern and care for attachments are expressed. Among these means are devices and appliances, together with the energy consumed by them. While these objects and the energy they use are thus instrumental goods, the fact that their meaning is bound up with care and concern can also make them constitutive. Indeed, they can (as in the case of Jack's electronics or Lucy's wood fires) become objects of attachment in themselves, which help to further anchor background imaginaries of a good life in concrete contexts of activity and consumption.

If we accept that an everyday ethics of energy can be understood in the way sketched out in this section, then this has implications for how we approach questions of energy justice. This is not because of the immediate implications of an everyday ethics of energy for debates about how access to energy services is distributed. Distributive justice is often tackled as an issue to be solved through better administration of resources – or, in the case of energy justice viewed against the backdrop of energy transition – through the management of change (Shove and Walker 2007). At this high level, distributive justice often becomes a matter of simplification (Norton 2005), reducing the fulfilment of needs to the provision of quantitative units of particular goods (of food calories, megawatts of energy, or even more abstract units like utility). This is exemplified by, for example, Vaclav Smil's argument that creating an energy system that generates 60-110 gigajoules (GJ) of energy annually per capita is enough to sustain an optimal level of well-being, before the marginal benefits begin to diminish.

The problem here is that there is no universal user of these goods (Ozaki and Shaw 2014). Some users may have greater need of energy, others less. The concept of equity, rather than equal shares, is thus an important part of energy justice discourse. We may attempt to define a set of essential human interests that then would then provide an anchor for doctrines of rights (Doyal & Gough, 1991). This would make it possible to determine what different sets and subsets of people need (the elderly or chronically ill may need more energy for heating or cooling, for example). Some needs may be taken as 'prepotent', that is, as needs which must be fulfilled to allow people to pursue their broader interests (food, education, shelter, for example). Energy consumption may play a significant role in meeting these prepotent needs (a role which may differ in different times and places, given variations in available technology). This point leads us towards a particular paradigm of distributive justice (Sovacool & Dworkin, 2015, p. 440). According to this paradigm, access to various forms of energy consumption is understood as needing to be equitable across a population and indeed globally. But in order to be genuinely equitable, definitions of what forms of energy consumption are genuinely needed have to be responsive to how people themselves understand the difference between necessary and non-necessary uses of energy. The picture of what justice involves thus becomes more complex. Rather than just affirming that some energy services are 'necessary for all humans' in the same form, then we require 'some evidence of shared social understandings' (Walker, Simcock, and Day 2016) of how energy is used in a society. Such evidence would enable us to track what socially necessary uses of energy might be. Such uses would be ones that are seen as enabling

people to participate 'in the lifestyles, customs and activities that define membership of society' (Bouzarovski and Petrova 2015, 33).

With the question of what uses of energy count as socially necessary, we move away from the simplified and indeed highly administrative or managerial model of quantified needs. Consultation, participation and engagement become necessary. Are smartphones socially necessary? Access to television and internet? Tumble dryers or electric heaters? Here, distributive justice is bracketed momentarily. Instead, the question of what kinds of energy access need to equitably distributed within and between nations moves into the foreground (Bouzarovski and Petrova 2015). Issues of procedural and recognition justice (Schlosberg 2013) – who gets a say and how what they say is allowed to make a difference – come into focus.

But what makes the issue even more complex is that to understand social necessity, we need to go beyond the idea of prepotent needs. Answering the question of social necessity in the context of focus groups like those examined by Walker, Simcock and Day invites participants to use their own experience to answer questions about needs and deprivation generally to determine what energy services are necessary for people to then fulfil particular other needs (Sovacool and Dworkin 3, 440). Social necessity is thus conceived in a similar way to the necessity Nussbaum attaches to capabilities (Nussbaum 2003). Here, humans are defined as requiring certain opportunities in order that they can be said to be capable of living a well-lived life. The issue here, however, is that not all these capabilities can easily be separated from each other, analytically speaking. For example, Nussbaum defines affiliation – including emotional attachment to other humans – as a central capability alongside others. But as we have seen, attachment is, in everyday energy ethics, inescapably part of how a wide range of needs are met with the aid of energy services. Shelter, as an element of Nussbaum's bodily health capability, is met through home (biographical attachment to a particular dwelling), which for Lucy, is connected to friendship, ideals of hospitality, and her sense of identity. This thicker context through which the meaning of need is understood by our participants only becomes apparent when the analytical lens falls on individual biographies, and the significance of particular events (such as lifecourse transitions) that happen in a specific order, creating impacts which endure.

Snapshots of socially-necessary uses of energy provide a particular picture of what might help to fulfil needs in general. However, they do not allow us to trace particular ways in which the use of energy, over time, can enrich lives by contributing to the formation of attachments, and the cultivation of valued identities and ways of living that they can support. Nor do they allow us to understand the ways in which life events, relating to socio-economic conditions, family relationships and other factors can interact with patterns of energy use to create uncertainty and vulnerability that go beyond a lack of material security. Christine, Jack, Lucy and Ronald all have very different stories to tell about flourishing and ill-being, security and disruption. But each of these interviewees tell them in ways that strive to place energy use within the context of specifically ethical evaluations of forms of identity and ways of living.

The everyday energy ethics we have traced within talk about mundane practices and domestic devices demonstrates how the ways in which energy matters to people are highly significant in complex and often invisible ways for whether lives are seen as going well or badly. They thus open up an alternative point of view on energy transitions and energy justice. This perspective invites us to re-evaluate our assumptions about how people, as ethical subjects, should be recognised as capable of contributing to decision making processes that concern the future of how energy is produced and used.

Conclusion

Everyday energy ethics, we have argued (following Lambek and others) is a mostly implicit register through which people make sense of their experiences of using energy. In everyday energy ethics, ethical evaluation is immanent in practices, in attachments, and in corporeal engagement in both. In line with the descriptive anthropology of ethics, we have explored above multiple ways in which energy use comes to matter, as a constitutive element of valued identities and ways of being in the world. We have argued that a thick analysis of the meanings of energy use can point towards a re-evaluation of some procedural and recognition aspects of energy justice approaches. Wider participation in thinking about socially necessary, but also broadly desirable and undesirable ways of using energy, must necessarily be part of a low carbon energy transition, for reasons that might be called instrumental, but also substantive and normative (Fiorino 1990). But to frame participation chiefly as a matter of determining how access to different ways of using energy should be distributed, even where methods have been developed to counter unhelpful simplification of needs, risks missing out on important ways in which energy use can contribute both to flourishing and to harm. These may be hard to trace without elicitation methods that are sensitised both to past biographical transitions and anticipated futures. *Energy Biographies* suggests that calling on citizens to think about socially necessary energy use may have an important role. At the same time, this role should be complemented by research that enables wider reflection on how and why particular patterns of energy use have become necessary for individuals, families and communities. In addition, such research might make it possible to imagine different ways of using energy. A biographical approach can explore links, as we have argued, between broader social transitions and biographical attachments (as in the widespread adoption in the UK of gas-fired central heating and the responses to it, both positive and ambivalent, we have detailed in this article). Using such an approach can perhaps support attempts to encourage public deliberation on sustainability agendas while also looking at ways to transform energy consumption in ways that enrich attachments and identities – not only in communities in the global North but indeed globally.

Everyday energy ethics in this sense does not lead directly to an evaluation of the ethical content of Lucy, Jack or anyone else's evaluations of their own or others' energy use. What it does do is increase sensitivity to the complexity of these evaluations as they evolve over time. The limitations of our methods here lie principally in the ways in

which they have, as part of Energy Biographies, outlined the directions we have described above, as well as in the ways in which it was often not possible to interview more than one person from a particular household, so as to gain distinct and potentially conflicting perspectives on the meanings of energy use patterns. Our methods have not yet been developed in ways that allow the sometimes difficult moral conflicts articulated by our respondents to be explored further. These issues may raise ethical questions for researchers, just as they pose particular difficulties for participatory approaches that might want to focus on the moral conflicts that may arise from within everyday energy ethics and their significance for energy transition policies.

With energy transitions policy in the frame, we suggest that the significance of the research outlined in this paper points in another direction, which has to do with the framing and reframing of transitions as such. Reflexivity towards the framing of social problems has long been on the agenda within science and technology studies (Chilvers and Kearnes 2015). Visions of transition may have a positive effect on agency (Shove and Walker 2007), but they also selectively interpret social priorities in ways that may exclude those of relatively marginalised groups. The energy trilemma itself represents an issue framing that positions affordability, security and decarbonisation in ways that, first and foremost, favour the priorities of energy producers. As Hildyard et al. (2012) point out, the meaning of energy security changes radically when its meaning is sought in dialogue with urban as opposed to rural communities, and in the global South as contrasted to the North. As Marchant (2016) points out, when potential consumer-side obstacles to energy transition are of concern, often the focus falls on how to change behaviour. But the issues which transition raises often touch not on how to incentivise change in consumer behaviour, but evaluative and normative issues, ones related to values like ‘aesthetics, convenience and trust’ (Marchant 2016, 1). As we have argued here, these issues go deeper, relating to how energy using practices and infrastructures relate to valued identities and ways of being. It may be, then, that attention to the everyday ethics of energy opens up the possibility of a participatory re-definition of the energy trilemma, one which reflects end-user priorities (as suggested by Marchant) that concern the thicker ways in which energy use can contribute to flourishing.

References

- Antonucci, Toni C., and Hiroko Akiyama. 1994. “Convoys of Attachment and Social Relations in Children, Adolescents, and Adults.” *Social Networks and Social Support in Childhood and Adolescence*, 37–52.
- Bouzarovski, Stefan, and Saska Petrova. 2015. “A Global Perspective on Domestic Energy Deprivation: Overcoming the Energy Poverty–fuel Poverty Binary.” *Energy Research & Social Science* 10 (November): 31–40. doi:10.1016/j.erss.2015.06.007.
- Chilvers, J., and M. Kearnes. 2015. *Remaking Participation: Science, Environment and Emergent Publics*. London: Taylor & Francis.
- Fiorino, Daniel J. 1990. “Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms.” *Science, Technology, & Human Values* 15: 226–43.

- Gilligan, C. 1982. *In a Different Voice*. Cambridge, MA: Harvard University Press.
- Gordon, David, and Eldin Fahmy. 2008. "A Small Area Fuel Poverty Indicator for Wales." Bristol: University of Bristol.
- Groves, C. 2011. "The Political Imaginary of Care: Generic versus Singular Futures." *Journal of International Political Theory* 7 (2): 165–89.
- Groves, C., Henwood, K., Shirani, F., Butler, C., Parkhill, K., & Pidgeon, N. (2016). "The grit in the oyster: using energy biographies to question socio-technical imaginaries of "smartness."" *Journal of Responsible Innovation*, 3(1), 4–25.
- Hildyard, Nicholas, Larry Lohmann, and Sarah Sexton. 2012. *Energy Security for What? For Whom?* Sturminster Newton: The Corner House.
- Hobson, Kersty. 2006. "Bins, Bulbs, and Shower Timers: On the 'Techno-Ethics' of Sustainable Living." *Ethics, Place & Environment* 9 (3): 317–36.
- Laidlaw, James. 2010. "Agency and Responsibility: Perhaps You Can Have Too Much of a Good Thing." In *Ordinary Ethics; Anthropology, Language, and Action*, edited by Michael Lambek, 143–64. New York: Fordham University Press.
- Lambek, Michael. 2010. "Introduction." In *Ordinary Ethics: Anthropology, Language and Action*, edited by Michael Lambek, 1–38. New York: Fordham University Press.
- Latour, B. 2004. "Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern." *Critical Enquiry* 30 (2): 225–48.
- Marchant, Ian. 2016. "Elephants in Energy : 5 Things to Consider in Energy Policy." Strathclyde: Strathclyde University. <http://strathprints.strath.ac.uk/57909/>.
- Michael, Mike. 2015. "Engaging the Mundane: Complexity and Speculation in Everyday Technoscience." In *Remaking Participation*, edited by J. Chilvers and M. Kearnes, 81–98. London: Routledge.
- Newell, Peter, and Dustin Mulvaney. 2013. "The Political Economy of the 'just Transition.'" *The Geographical Journal* 179 (2): 132–40.
- Norton, B.G. 2005. *Sustainability: A Philosophy of Adaptive Ecosystem Management*. Chicago: University of Chicago Press.
- Nussbaum, Martha C. 2003. *Women and Human Development: The Capabilities Approach*. Cambridge: Cambridge University Press.
- O'Neill, John. 2008. "Happiness and the Good Life." *Environmental Values* 17: 125–44.
- Ozaki, Ritsuko, and Isabel Shaw. 2014. "Entangled Practices: Governance, Sustainable Technologies, and Energy Consumption." *Sociology* 48 (3): 590–605. doi:10.1177/0038038513500101.
- Sayer, Andrew. 2009. "Who's Afraid of Critical Social Science?" *Current Sociology* 57 (6): 767–86. doi:10.1177/0011392109342205.
- . 2011. *Why Things Matter to People : Social Science, Values and Ethical Life*. Cambridge; New York: Cambridge University Press.
- Schlosberg, David. 2013. "Theorising Environmental Justice: The Expanding Sphere of a Discourse." *Environmental Politics* 22 (1): 37–55. doi:10.1080/09644016.2013.755387.
- Shove, E. 1997. "Revealing the Invisible: Sociology, Energy and the Environment." In *The International Yearbook of Environmental and Resource Economics 2000/2001*, edited by M. R. Redclift and Graham Woodgate, 261–73. Cheltenham: Edward Elgar Publishing.
- . 2010. "Beyond the ABC: Climate Change Policy and Theories of Social Change." *Environment and Planning A* 42 (6): 1273–85.

- Shove, E., M. Pantzar, and M. Watson. 2012. *The Dynamics of Social Practice: Everyday Life and How It Changes*. London: SAGE Publications.
<http://books.google.co.uk/books?id=L-ILf3b9P-AC>.
- Shove, E., and Dale Southerton. 2000. "Defrosting the Freezer: From Novelty to Convenience: A Narrative of Normalization." *Journal of Material Culture* 5 (3): 301–19. doi:10.1177/135918350000500303.
- Shove, Elizabeth, and Gordon Walker. 2007. "Caution! Transitions Ahead: Politics, Practice, and Sustainable Transition Management." *Environment and Planning A* 39 (4): 763–70. doi:10.1068/a39310.
- Snow, David A., and Leon Anderson. 1987. "Identity Work Among the Homeless: The Verbal Construction and Avowal of Personal Identities." *American Journal of Sociology* 92 (6): 1336–71. doi:10.1086/228668.
- Sovacool, Benjamin K., and Michael H. Dworkin. 3. "Energy Justice: Conceptual Insights and Practical Applications." *Applied Energy* 142: 435–44.
doi:10.1016/j.apenergy.2015.01.002.
- Strengers, Yolande. 2011. "Negotiating Everyday Life: The Role of Energy and Water Consumption Feedback." *Journal of Consumer Culture* 11 (3): 319–38.
doi:10.1177/1469540511417994.
- Thomas, G., Groves, C., Henwood, K., & Pidgeon, N., forthcoming. "Texturing waste: attachment and identity in every-day consumption and waste practices". *Environmental Values*.
- Vannini, P., and J. Taggart. 2014. *Off the Grid: Re-Assembling Domestic Life*. London: Routledge.
- Walker, Gordon, Neil Simcock, and Rosie Day. 2016. "Necessary Energy Uses and a Minimum Standard of Living in the United Kingdom: Energy Justice or Escalating Expectations?" *Energy Research & Social Science*. doi:10.1016/j.erss.2016.02.007.
- Wallendorf, Melanie, and Eric J. Arnould. 1988. "'My Favourite Things': a Cross-Cultural Inquiry into Object Attachment, Possessiveness, and Social Linkage." *Journal of Consumer Research* 14: 531–47.
- Zigon, Jarrett. 2007. Moral Breakdown and the Ethical Demand." *Anthropological Theory* 7(2): 131-150.